ELSEVIER

Volume 191, Issues 1–3, 1 August 2007

Journal of
Materials
Processing
Technology

www.elsevier.com/locate/jmatprotec

Contents

Preface 1
J.S. Gunasekera, B.V. Mehta

Design of processes and products through simulation of three-dimensional extrusion 2
D.Y. Yang, K.J. Kim

Springback behavior of brass in micro sheet forming 7
J.-T. Gau, C. Principe, M. Yu

A model for an adaptable axisymmetric extrusion die with a bearing length 11
W.A. Gordon, C.J. Van Tyne, Y.H. Moon

Deformation characteristics of Au wire bonding 16
H. Saiki, H. Nishitake, T. Yotsumoto, Y. Marumo

Characterization of yielding of sheet metal at elevated temperatures 20
W. Hußnätter, M. Merklein, M. Geiger

Effect of material properties on deformation behavior in incremental tube-burring process using a bar tool 24
T. Teramae, K. Manabe, K. Ueno, K. Nakamura, H. Takeda

Processing effects in aluminum micro-channel tube for brazed R744 heat exchangers 30
G. Vamadevan, F.F. Kraft

Modeling the integration between technological product specifications and inspection process 34
R. Hunter, J. Perez, J. Marquez, J.C. Hernandez

Design guideline of multi-pass equal channel angular extrusion for uniform strain distribution 39
J.-H. Lee, I.-H. Son, Y.-T. Im, S.H. Chon, J.K. Park

Experimental investigations of the roll load and roll torque when high strength steel is roll formed 44
M. Lindgren

Preparation of iron–platinum nanoparticles in water/triton/cyclohexane microemulsions 48
K.M. Hyie, I.I. Yaacob

Determination of optimum process parameters for wrinkle free products in deep drawing process 51
A. Agrawal, N.V. Reddy, P.M. Dixit

A study on monobloc tube drawing for steering input shaft 55
S.K. Lee, D.C. Ko, B.M. Kim, J.H. Lee, S.W. Kim, Y.S. Lee

Experimental and numerical study on deformation behavior in dieless drawing process of superplastic microtubes 59
T. Furushima, K. Manabe

The evaluation of residual stress on the drawn wire using nano-indentation test 64
D.C. Ko, S.K. Lee, W.H. Hwangb, B.M. Kim, C.M. Bae

Chitosan-mediated electrosynthesis of organic–inorganic nanocomposites 68
I. Zhitomirsky, A. Hashambhoy

Behavior pattern and parametric characterization for low density crushable foams 73
Q. Liu, B. O'Toole

Friction stir processing of commercial AZ31 magnesium alloy 77
B.M. Darras, M.K. Khraisheh, F.K. Abu-Farha, M.A. Omar

Metallographic evaluation of welded forging preforms 82
J. Domblesky, F.F. Kraft

Elsevier B.V.

Investigations into collar drawing using urethane pads 87
S. Thiruvarudchelvan, M.J. Tan

An analytical model for improving precision in single point incremental forming 92
G. Ambrogio, V. Cozza, L. Filice, F. Micari

An overview of magnetostriction, its use and methods to measure these properties 96
N.B. Ekreem, A.G. Olabi, T. Prescott, A. Rafferty, M.S.J. Hashmi

Polymer and composite foam for hydrogen storage application 102
G.A. Banyay, M.M. Shaltout, H. Tiwari, B.V. Mehta

Statistical analysis of MIG-laser CO_2 hybrid welding of Al–Mg alloy 106
G. Casalino

The influence of arc transfer mode in hybrid laser-mig welding 111
G. Campana, A. Fortunato, A. Ascari, G. Tani, L. Tomesani

Numerical investigation of austenite grain size distribution in square-diamond pass hot bar rolling 114
H.-W. Lee, H.-C. Kwon, Y.-T. Im, P.D. Hodgson

Development of a test method for the rheological characterization of polymers under the injection molding process conditions 119
P.F. Bariani, M. Salvador, G. Lucchetta

Use of powder metallurgy (PM) compacted electrodes for electrical discharge surface alloying/modification of Ti–6Al–4V alloy 123
S.K. Ho, D.K. Aspinwall, W. Voice

Characterization of seam weld quality in AA6082 extruded profiles 127
L. Donati, L. Tomesani, G. Minak

Lateral crushing of circular and non-circular tube systems under quasi-static conditions 132
E. Morris, A.G. Olabi, M.S.J. Hashmi

Effect of initial thickness on shear bending process of circular tubes 136
M. Goodarzi, T. Kuboki, M. Murata

Examination of machining parameters on surface roughness in EDM of tool steel 141
M. Kiyak, O. Çakır

Development of a ball groove measuring system for forged outer race constant velocity (CV) joints 145
K.S. Park, B.J. Kim, Y.H. Moon

Microstructural analysis of AISI 304 bars welded with high speed pulsed discharges 149
G. Casalino, F.W. Panella

Chemical-assisted ultrasonic machining of glass 153
J.P. Choi, B.H. Jeon, B.H. Kim

Effects of tooling temperatures on formability of titanium TWBs at elevated temperatures 157
C.P. Lai, L.C. Chan, C.L. Chow

Corrosion behavior of vacuum sintered duplex stainless steels 161
L.A. Dobrzański, Z. Brytan, M. Actis Grande, M. Rosso

Experimental investigation for rheology forming process of Al–7% Si aluminum alloy with electromagnetic system 165
J.W. Bae, T.W. Kim, C.G. Kang

Residual stresses in aluminum castings 170
J.E. Wyatt, J.T. Berry, A.R. Williams

Springback determination of sheet metals in an air bending process based on an experimental work 174
M.L. Garcia-Romeu, J. Ciurana, I. Ferrer

High cycle fatigue life prediction of cold forging tools based on workpiece material property 178
M.A. Saroosh, H.-C. Lee, Y.-T. Im, S.-W. Choi, D.-L. Lee

Electro-discharge compaction of WC–Co and W–Ni–Fe–Co composite materials 182
E.G. Grigoriev, A.V. Rosliakov

Pulsed liquid impact machining of materials 185
M.J. Jackson

The effect of strain rate sensitivity evolution on deformation stability during superplastic forming 189
M.A. Nazzal, M.K. Khraisheh, F.K. Abu-Farha

Investigation of the size effect on crack propagation using finite element method and strain gradient plasticity 193
S.M. Byon, H.S. Kim, Y. Lee

Natural weathering effects on some properties of CPVC pipe material 198
N. Merah

Cavitation phenomenon of commercially pure titanium 202
M.J. Tan, X.J. Zhu, S. Thiruvarudchelvan

Prediction of wear and surface roughness in electro-discharge diamond grinding 206
S. Kumar, S.K. Choudhury

Creep feed grinding of a gamma titanium aluminide intermetallic alloy using SiC abrasives 210
R. Hood, D.K. Aspinwall, W. Voice

Thermo-mechanical modeling of laser welding of AA5083 sheets 215
R. Spina, L. Tricarico, G. Basile, T. Sibillano

Experimental analysis of the laser milling process parameters 220
S.L. Campanelli, A.D. Ludovico, C. Bonserio, P. Cavalluzzi, M. Cinquepalmi

Improvement of surface integrity of electro-chemical discharge machining process using powder-mixed electrolyte 224
M.-S. Han, B.-K. Min, S.J. Lee

Laser processing of multicrystalline silicon for texturization of solar cells 228
L.A. Dobrzański, A. Drygała

Sintering and vitrification heat treatment of cBN grinding wheels 232
M.J. Jackson

Synthesis and characterization of magnetic iron oxide nanoparticles via w/o microemulsion and Massart's procedure 235
A.B. Chin, I.I. Yaacob

Casting of Al–Si hypereutectic aluminum alloy strip using an unequal diameter twin roll caster 238
T. Haga, H. Inui, H. Watari, S. Kumai

Evaluation of methods for metal cleanliness assessment in die casting 242
J. Wannasin, D. Schwam, J.F. Wallace

Pressurized solidification of magnesium alloy AM50A 247
A. Yu, S. Wang, N. Li, H. Hu

Mathematical model for the twin roll type strip continuous casting of magnesium alloy considering thermal flow phenomena 251
J.W. Bae, C.G. Kang, S.B. Kang

Crash behavior of a 3D S-shape space frame structure 256
C. Zhang, A. Saigal

FEA-based methodology for the prediction of part–fixture behaviour and its applications 260
S. Ratchev, K. Phuah, S. Liu

Quantitative prediction of microporosity in aluminum alloys 265
E. Escobar de Obaldia, S.D. Felicelli

A new approach for the modelling of residual stresses induced by turning of 316L 270
F. Valiorgue, J. Rech, H. Hamdi, P. Gilles, J.M. Bergheau

Effect on cutting force in turning hardened tool steels with cubic boron nitride inserts 274
L. Qian, M.R. Hossan

Selection of cutting conditions for a stable milling of flexible parts with bull-nose end mills 279
F.J. Campa, L.N. López de Lacalle, A. Lamikiz, J.A. Sánchez

Fabrication of micro-billet by sheet extrusion 283
K. Hirota

The role of friction in the extrusion of AA6060 aluminum alloy, process analysis and monitoring 288
M. Schikorra, L. Donati, L. Tomesani, M. Kleiner

Improvement of micro-drilled hole quality for printed wiring boards 293
H. Nakagawa, K. Ogawa, A. Kihara, T. Hirogaki

Influence of microshot peening on surface layer characteristics of structural steel 297
Y. Harada, K. Fukaura, S. Haga

Electrode structure for high transmittance and aperture ratio in TFT-LCD 302
S. Yoon, T. Won

A semi-analytical model for predicting the wear contour in rod rolling process 306
S.M. Byon, S.I. Kim, Y. Lee

Requirements of a dieless wire drawing system 310
M.D. Naughton, P. Tiernan

Influence of temperature on the initiation of adhesive wear with respect to deep drawing of aluminum-alloys 314
P. Groche, G. Nitzsche

Effect of cooling rate on the solidification behavior of AC $AlSi_7Cu_2$ alloy 317
L.A. Dobrzański, R. Maniara, J. Sokołowski, W. Kasprzak

Comparison of the surface alloying of the 32CrMoV12-28 tool steel using TiC and WC powder 321
L.A. Dobrzański, K. Labisz, E. Jonda, A. Klimpel

The effects of thin-film thickness on the formaton of metallic patterns by direct nanoimprint 326
M.-C. Cheng, C.-K. Sung, W.H. Wang

Theoretical and experimental investigations of finish machining with a rounded edge tool 331
N. Fang, G. Fang

Thermal distortions in the machining of small bores 335
V. Bana, B. Karpuschewski, J. Kundrák, A.M. Hoogstrate

Torsional fatigue behavior of adhesively joined tubes 339
P. Portillo, Dr.J. Kreiner, Dr.T. Lancey

Numerical and experimental investigations on the effect of the heating strategy and the punch speed on the warm deep drawing of magnesium alloy AZ31 342
G. Palumbo, D. Sorgente, L. Tricarico, S.H. Zhang, W.T. Zheng

Influence of montmorillonite clay on the thermal and mechanical properties of conventional carbon fiber reinforced composites 347
Y. Zhou, F. Pervin, V.K. Rangari, S. Jeelani

New possibilities of composite materials application—Materials of specific magnetic properties 352
L.A. Dobrzański, M. Drak, B. Ziębowicz

CDRX modelling in friction stir welding of AA7075-T6 aluminum alloy: Analytical approaches 356
G. Buffa, L. Fratini, R. Shivpuri

Investigation on properties and microstructures of spheroidal graphite Fe–C–2Si and Fe–C–2Al cast irons 360
M.M. Haque

Optical detection of conduction/keyhole mode transition in laser welding 364
T. Sibillano, A. Ancona, V. Berardi, E. Schingaro, G. Basile, P.M. Lugarà

Experimental and analytical evaluation on flow stress of tubular material for tube hydroforming simulation 368
W.J. Song, J. Kim, B.S. Kang

Deformation behavior of wrought aluminum alloys in incremental compression experiment with a closed die 372
W.Y. Kim, C.G. Kang, B.M. Kim

Thermal de-vitrification and formation of single phase nano-crystalline structure in Fe-based metallic glass alloys 377
A.O. Olofinjana, K.S. Tan

Mechanical characterization of CO_2 laser beam butt welds of AA5083 381
A. Ancona, P.M. Lugarà, D. Sorgente, L. Tricarico

Numerical analysis of debinding and sintering of MIM parts 385
D.F. Heaney, R. Spina

Shape and dimensional accuracy in Single Point Incremental Forming: State of the art and future trends 390
F. Micari, G. Ambrogio, L. Filice

A study of hydrostatic extrusion as a consolidation process for fabricating ultrafine-grained bulk Al–Mg alloy 396
S. Lee, C.Y. Yoon, H.J. Park, S.S. Kim, E.J. Kim, T.H. Choi, K.Y. Rhee

Robust design of flank milling parameters based on grey-Taguchi method 400
J. Kopac, P. Krajnik

Performance of different abrasive materials during abrasive water jet machining of glass 404
A.A. Khan, M.M. Haque

Author index 408

Subject index 410

ELSEVIER

Journal of Materials Processing Technology 191 (2007) 408–409

Journal of Materials Processing Technology

www.elsevier.com/locate/jmatprotec

Author Index of Volume 191

Abu-Farha, F.K., 77, 189
Actis Grande, M., 161
Agrawal, A., 51
Ambrogio, G., 92, 390
Ancona, A., 364, 381
Ascari, A., 111
Aspinwall, D.K., 123, 210

Bae, C.M., 64
Bae, J.W., 165, 251
Bana, V., 335
Banyay, G.A., 102
Bariani, P.F., 119
Basile, G., 215, 364
Berardi, V., 364
Bergheau, J.M., 270
Berry, J.T., 170
Bonserio, C., 220
Brytan, Z., 161
Buffa, G., 356
Byon, S.M., 193, 306

Çakır, O., 141
Campa, F.J., 279
Campana, G., 111
Campanelli, S.L., 220
Casalino, G., 106, 149
Cavalluzzi, P., 220
Chan, L.C., 157
Cheng, M.-C., 326
Chin, A.B., 235
Choi, J.P., 153
Choi, S.-W., 178
Choi, T.H., 396
Chon, S.H., 39
Choudhury, S.K., 206
Chow, C.L., 157
Cinquepalmi, M., 220
Ciurana, J., 174
Cozza, V., 92

Darras, B.M., 77
Dixit, P.M., 51
Dobrzański, L.A., 161, 228, 317, 321, 352
Domblesky, J., 82
Donati, L., 127, 288
Drak, M., 352
Dr. Kreiner, J., 339
Dr. Lancey, T., 339
Drygała, A., 228

Ekreem, N.B., 96
Escobar de Obaldia, E., 265

Fang, G., 331
Fang, N., 331
Felicelli, S.D., 265
Ferrer, I., 174
Filice, L., 92, 390
Fortunato, A., 111
Fratini, L., 356
Fukaura, K., 297
Furushima, T., 59

Garcia-Romeu, M.L., 174
Gau, J.-T., 7
Geiger, M., 20
Gilles, P., 270
Goodarzi, M., 136
Gordon, W.A., 11
Grigoriev, E.G., 182
Groche, P., 314
Gunasekera, J.S., 1

Haga, S., 297
Haga, T., 238
Hamdi, H., 270
Han, M.-S., 224
Haque, M.M., 360, 404
Harada, Y., 297
Hashambhoy, A., 68
Hashmi, M.S.J., 96, 132
Heaney, D.F., 385
Hernandez, J.C., 34
Hirogaki, T., 293
Hirota, K., 283
Ho, S.K., 123
Hodgson, P.D., 114
Hood, R., 210
Hoogstrate, A.M., 335
Hossan, M.R., 274
Hu, H., 247
Hunter, R., 34
Hußnätter, W., 20
Hwangb, W.H., 64
Hyie, K.M., 48

Im, Y.-T., 39, 114, 178
Inui, H., 238

Jackson, M.J., 185, 232
Jeelani, S., 347
Jeon, B.H., 153
Jonda, E., 321

Kang, B.S., 368
Kang, C.G., 165, 251, 372
Kang, S.B., 251
Karpuschewski, B., 335
Kasprzak, W., 317
Khan, A.A., 404
Khraisheh, M.K., 77, 189
Kihara, A., 293
Kim, B.H., 153
Kim, B.J., 145
Kim, B.M., 55, 64, 372
Kim, E.J., 396
Kim, H.S., 193
Kim, J., 368
Kim, K.J., 2
Kim, S.I., 306
Kim, S.S., 396
Kim, S.W., 55
Kim, T.W., 165
Kim, W.Y., 372
Kiyak, M., 141
Kleiner, M., 288
Klimpel, A., 321
Ko, Dr.C., 55, 64
Kopac, J., 400
Kraft, F.F., 30, 82
Krajnik, P., 400
Kuboki, T., 136
Kumai, S., 238
Kumar, S., 206
Kundrák, J., 335
Kwon, H.-C., 114

Labisz, K., 321
Lai, C.P., 157
Lamikiz, A., 279
Lee, D.-L., 178
Lee, H.-C., 178
Lee, H.-W., 114
Lee, J.-H., 39
Lee, J.H., 55
Lee, S., 396
Lee, S.J., 224
Lee, S.K., 55, 64
Lee, Y., 193, 306
Lee, Y.S., 55
Li, N., 247
Lindgren, M., 44
Liu, Q., 73
Liu, S., 260
López de Lacalle, L.N., 279
Lucchetta, G., 119
Ludovico, A.D., 220
Lugarà, P.M., 364, 381

Elsevier B.V.
doi:10.1016/S0924-0136(07)00554-7

Manabe, K., 24, 59
Maniara, R., 317
Marquez, J., 34
Marumo, Y., 16
Mehta, B.V., 1, 102
Merah, N., 198
Merklein, M., 20
Micari, F., 92, 390
Min, B.-K., 224
Minak, G., 127
Moon, Y.H., 11, 145
Morris, E., 132
Murata, M., 136

Nakagawa, H., 293
Nakamura, K., 24
Naughton, M.D., 310
Nazzal, M.A., 189
Nishitake, H., 16
Nitzsche, G., 314

O'Toole, B., 73
Ogawa, K., 293
Olabi, A.G., 96, 132
Olofinjana, A.O., 377
Omar, M.A., 77

Palumbo, G., 342
Panella, F.W., 149
Park, H.J., 396
Park, J.K., 39
Park, K.S., 145
Perez, J., 34
Pervin, F., 347
Phuah, K., 260Portillo, P., 339
Prescott, T., 96
Principe, C., 7

Qian, L., 274

Rafferty, A., 96
Rangari, V.K., 347
Ratchev, S., 260
Rech, J., 270
Reddy, N.V., 51
Rhee, K.Y., 396
Rosliakov, A.V., 182
Rosso, M., 161

Saigal, A., 256
Saiki, H., 16
Salvador, M., 119
Sánchez, J.A., 279
Saroosh, M.A., 178
Schikorra, M., 288
Schingaro, E., 364
Schwam, D., 242
Shaltout, M.M., 102
Shivpuri, R., 356
Sibillano, T., 215, 364
Sokołowski, J., 317
Son, I.-H., 39
Song, W.J., 368
Sorgente, D., 342, 381
Spina, R., 215, 385
Sung, C.-K., 326
Takeda, H., 24
Tan, K.S., 377
Tan, M.J., 87, 202
Tani, G., 111
Teramae, T., 24
Thiruvarudchelvan, S., 87, 202
Tiernan, P., 310
Tiwari, H., 102
Tomesani, L., 111, 127, 288
Tricarico, L., 215, 342, 381

Ueno, K., 24

Valiorgue, F., 270
Vamadevan, G., 30
Van Tyne, C.J., 11
Voice, W., 123, 210

Wallace, J.F., 242
Wang, S., 247
Wang, W.H., 326
Wannasin, J., 242
Watari, H., 238
Williams, A.R., 170
Won, T., 302
Wyatt, J.E., 170

Yaacob, I.I., 48, 235
Yang, D.Y., 2
Yoon, C.Y., 396
Yoon, S., 302
Yotsumoto, T., 16
Yu, A., 247
Yu, M., 7

Zhang, C., 256
Zhang, S.H., 342
Zheng, W.T., 342
Zhitomirsky, I., 68
Zhou, Y., 347
Zhu, X.J., 202
Ziębowicz, B., 352

ELSEVIER

Journal of Materials Processing Technology 191 (2007) 410–417

Journal of Materials Processing Technology

www.elsevier.com/locate/jmatprotec

Subject Index of Volume 191

AA 6082
Characterization of seam weld quality in AA6082 extruded profiles, 127
AA6060
The role of friction in the extrusion of AA6060 aluminum alloy, process analysis and monitoring, 288
Ablation
Experimental analysis of the laser milling process parameters, 220
Accuracy
An analytical model for improving precision in single point incremental forming, 92
Shape and dimensional accuracy in Single Point Incremental Forming: State of the art and future trends, 390
Adaptable die
A model for an adaptable axisymmetric extrusion die with a bearing length, 11
Adhesive bonding
Torsional fatigue behavior of adhesively joined tubes, 339
Adhesive wear
Influence of temperature on the initiation of adhesive wear with respect to deep drawing of aluminum-alloys, 314
Air bending
Springback determination of sheet metals in an air bending process based on an experimental work, 174
Al–Mg alloy
Statistical analysis of MIG-laser CO_2 hybrid welding of Al–Mg alloy, 106
Aluminium alloys
Mechanical characterization of CO_2 laser beam butt welds of AA5083, 381
Aluminum
Quantitative prediction of microporosity in aluminum alloys, 265
Fabrication of micro-billet by sheet extrusion, 283
Influence of temperature on the initiation of adhesive wear with respect to deep drawing of aluminum-alloys, 314
Aluminum alloys
Residual stresses in aluminum castings, 170
Thermo-mechanical modeling of laser welding of AA5083 sheets, 215
Effect of cooling rate on the solidification behavior of AC $AlSi_7Cu_2$ alloy, 317
Aluminum foam
Crash behavior of a 3D S-shape space frame structure, 256
Amorphous phase
Thermal de-vitrification and formation of single phase nano-crystalline structure in Fe-based metallic glass alloys, 377
Analytical modeling
Theoretical and experimental investigations of finish machining with a rounded edge tool, 331
ANSYS
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Artificial neural network
Prediction of wear and surface roughness in electro-discharge diamond grinding, 206
Austenite grain size
Numerical investigation of austenite grain size distribution in square-diamond pass hot bar rolling, 114
Austenitic stainless steel
A new approach for the modelling of residual stresses induced by turning of 316L, 270
Average width of cut
Performance of different abrasive materials during abrasive water jet machining of glass, 404
AWJM
Performance of different abrasive materials during abrasive water jet machining of glass, 404

Ball groove
Development of a ball groove measuring system for forged outer race constant velocity (CV) joints, 145
Bearing length
A model for an adaptable axisymmetric extrusion die with a bearing length, 11
Behavior pattern
Behavior pattern and parametric characterization for low density crushable foams, 73
Bending
Springback behavior of brass in micro sheet forming, 7
Springback determination of sheet metals in an air bending process based on an experimental work, 174
Blank holder pressure
Determination of optimum process parameters for wrinkle free products in deep drawing process, 51
Bondability
Deformation characteristics of Au wire bonding, 16
Brass
Springback behavior of brass in micro sheet forming, 7
Burring
Effect of material properties on deformation behavior in incremental tube-burring process using a bar tool, 24
Burst pressure
Processing effects in aluminum micro-channel tube for brazed R744 heat exchangers, 30
Butt-joint
Mechanical characterization of CO_2 laser beam butt welds of AA5083, 381

Carbon/epoxy composite
Influence of montmorillonite clay on the thermal and mechanical properties of conventional carbon fiber reinforced composites, 347
Casting
Residual stresses in aluminum castings, 170

Elsevier B.V.
doi:10.1016/S0924-0136(07)00555-9

Cavitation
Cavitation phenomenon of commercially pure titanium, 202
CBN tool
Effect on cutting force in turning hardened tool steels with cubic boron nitride inserts, 274
Chatter
Selection of cutting conditions for a stable milling of flexible parts with bull-nose end mills, 279
Chemical-assisted ultrasonic machining
Chemical-assisted ultrasonic machining of glass, 153
Chitosan
Chitosan-mediated electrosynthesis of organic–inorganic nanocomposites, 68
Circular tube
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Clamping
FEA-based methodology for the prediction of part–fixture behaviour and its applications, 260
Closed die
Deformation behavior of wrought aluminum alloys in incremental compression experiment with a closed die, 372
Cold forging
Development of a ball groove measuring system for forged outer race constant velocity (CV) joints, 145
High cycle fatigue life prediction of cold forging tools based on workpiece material property, 178
Cold roll forming
Experimental investigations of the roll load and roll torque when high strength steel is roll formed, 44
Collar drawing
Investigations into collar drawing using urethane pads, 87
Composite materials
New possibilities of composite materials application—Materials of specific magnetic properties, 352
Compression test
Deformation behavior of wrought aluminum alloys in incremental compression experiment with a closed die, 372
Computer aided design
Electrode structure for high transmittance and aperture ratio in TFT-LCD, 302
Conductive particle
Improvement of surface integrity of electro-chemical discharge machining process using powder-mixed electrolyte, 224
Consolidation
A study of hydrostatic extrusion as a consolidation process for fabricating ultrafine-grained bulk Al–Mg alloy, 396
Constitutive equations
Numerical analysis of debinding and sintering of MIM parts, 385
Constitutive model
Behavior pattern and parametric characterization for low density crushable foams, 73
Continuous dynamic recrystallization
CDRX modelling in friction stir welding of AA7075-T6 aluminum alloy: Analytical approaches, 356
CPVC
Natural weathering effects on some properties of CPVC pipe material, 198
Crack growth simulation
Investigation of the size effect on crack propagation using finite element method and strain gradient plasticity, 193
Crack propagation test
Characterization of seam weld quality in AA6082 extruded profiles, 127
Crash behavior
Crash behavior of a 3D S-shape space frame structure, 256
Creep feed grinding
Creep feed grinding of a gamma titanium aluminide intermetallic alloy using SiC abrasives, 210
Crushable foam
Behavior pattern and parametric characterization for low density crushable foams, 73
Cryomilling
A study of hydrostatic extrusion as a consolidation process for fabricating ultrafine-grained bulk Al–Mg alloy, 396
Current
Examination of machining parameters on surface roughness in EDM of tool steel, 141
CV Joint
Development of a ball groove measuring system for forged outer race constant velocity (CV) joints, 145

Deep drawing
Determination of optimum process parameters for wrinkle free products in deep drawing process, 51
Influence of temperature on the initiation of adhesive wear with respect to deep drawing of aluminum-alloys, 314
Deformation behavior
Experimental and numerical study on deformation behavior in dieless drawing process of superplastic microtubes, 59
Deformation pattern
Deformation characteristics of Au wire bonding, 16
Deformation stability
The effect of strain rate sensitivity evolution on deformation stability during superplastic forming, 189
Design
Requirements of a dieless wire drawing system, 310
Design guideline
Design guideline of multi-pass equal channel angular extrusion for uniform strain distribution, 39
Design of experiment
The influence of arc transfer mode in hybrid laser-mig welding, 111
De-vitrification
Thermal de-vitrification and formation of single phase nanocrystalline structure in Fe-based metallic glass alloys, 377
Die casting
Evaluation of methods for metal cleanliness assessment in die casting, 242
Dieless drawing
Experimental and numerical study on deformation behavior in dieless drawing process of superplastic microtubes, 59
Requirements of a dieless wire drawing system, 310
Diode laser
Characterization of yielding of sheet metal at elevated temperatures, 20
Direct imprint
The effects of thin-film thickness on the formaton of metallic patterns by direct nanoimprint, 326
Discharge energy
Improvement of surface integrity of electro-chemical discharge machining process using powder-mixed electrolyte, 224
DOE
An analytical model for improving precision in single point incremental forming, 92
Prediction of wear and surface roughness in electro-discharge diamond grinding, 206
Drawing experiment
A study on monobloc tube drawing for steering input shaft, 55
Drill temperature
Improvement of micro-drilled hole quality for printed wiring boards, 293
Drill workload
Improvement of micro-drilled hole quality for printed wiring boards, 293
Duplex
Corrosion behavior of vacuum sintered duplex stainless steels, 161

ECAE process
Design guideline of multi-pass equal channel angular extrusion for uniform strain distribution, 39
EDM
Examination of machining parameters on surface roughness in EDM of tool steel, 141
Electrical discharge machining
Use of powder metallurgy (PM) compacted electrodes for electrical discharge surface alloying/modification of Ti–6Al–4V alloy, 123
Electro-discharge diamond grinding
Prediction of wear and surface roughness in electro-discharge diamond grinding, 206
Electromagnetic stirring
Experimental investigation for rheology forming process of Al–7% Si aluminum alloy with electromagnetic system, 165
Electrophoresis
Chitosan-mediated electrosynthesis of organic–inorganic nanocomposites, 68
Electrosynthesis
Chitosan-mediated electrosynthesis of organic–inorganic nanocomposites, 68
Elliptical tube
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Energy absorber
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Eutectic nucleation temperature
Effect of cooling rate on the solidification behavior of AC $AlSi_7Cu_2$ alloy, 317
Extrusion
Design of processes and products through simulation of three-dimensional extrusion, 2
A model for an adaptable axisymmetric extrusion die with a bearing length, 11
Characterization of seam weld quality in AA6082 extruded profiles, 127
The role of friction in the extrusion of AA6060 aluminum alloy, process analysis and monitoring, 288

Fatigue
Torsional fatigue behavior of adhesively joined tubes, 339
FE analysis
The evaluation of residual stress on the drawn wire using nano-indentation test, 64
FE simulation
Effect of material properties on deformation behavior in incremental tube-burring process using a bar tool, 24
FEA
Polymer and composite foam for hydrogen storage application, 102
FE-analysis
A study on monobloc tube drawing for steering input shaft, 55
FEM
Effect of initial thickness on shear bending process of circular tubes, 136
Investigation of the size effect on crack propagation using finite element method and strain gradient plasticity, 193
Thermal distortions in the machining of small bores, 335
CDRX modelling in friction stir welding of AA7075-T6 aluminum alloy: Analytical approaches, 356
Ferromagnetic
Preparation of iron–platinum nanoparticles in water/triton/cyclohexane microemulsions, 48
FE-simulation
Characterization of yielding of sheet metal at elevated temperatures, 20
FINEMET
New possibilities of composite materials application—Materials of specific magnetic properties, 352
Finish machining
Theoretical and experimental investigations of finish machining with a rounded edge tool, 331
Finite difference method
Mathematical model for the twin roll type strip continuous casting of magnesium alloy considering thermal flow phenomena, 251
Finite element
Numerical and experimental investigations on the effect of the heating strategy and the punch speed on the warm deep drawing of magnesium alloy AZ31, 342
Finite element analysis (FEA)
The effect of strain rate sensitivity evolution on deformation stability during superplastic forming, 189
Thermo-mechanical modeling of laser welding of AA5083 sheets, 215
FEA-based methodology for the prediction of part–fixture behaviour and its applications, 260
Finite element methods
Mathematical model for the twin roll type strip continuous casting of magnesium alloy considering thermal flow phenomena, 251
Electrode structure for high transmittance and aperture ratio in TFT-LCD, 302
Numerical analysis of debinding and sintering of MIM parts, 385
Finite element modeling
Crash behavior of a 3D S-shape space frame structure, 256
Theoretical and experimental investigations of finish machining with a rounded edge tool, 331
Finite element simulation
Experimental and numerical study on deformation behavior in dieless drawing process of superplastic microtubes, 59
Fixtures
FEA-based methodology for the prediction of part–fixture behaviour and its applications, 260
Flexible structures
Selection of cutting conditions for a stable milling of flexible parts with bull-nose end mills, 279
Flow stress
Experimental and analytical evaluation on flow stress of tubular material for tube hydroforming simulation, 368
Fluidity
Investigation on properties and microstructures of spheroidal graphite Fe–C–2Si and Fe–C–2Al cast irons, 360
Forged microstructure
Metallographic evaluation of welded forging preforms, 82
Fracture toughness
Natural weathering effects on some properties of CPVC pipe material, 198
Free bulge test
Experimental and analytical evaluation on flow stress of tubular material for tube hydroforming simulation, 368
Friction
The role of friction in the extrusion of AA6060 aluminum alloy, process analysis and monitoring, 288
Friction stir processing
Friction stir processing of commercial AZ31 magnesium alloy, 77
Friction stir welding
CDRX modelling in friction stir welding of AA7075-T6 aluminum alloy: Analytical approaches, 356
Friction welding
Metallographic evaluation of welded forging preforms, 82

Glass
Chemical-assisted ultrasonic machining of glass, 153
GMAW
The influence of arc transfer mode in hybrid laser-mig welding, 111
Grey-Taguchi
Robust design of flank milling parameters based on grey-Taguchi method, 400

Grid test
The role of friction in the extrusion of AA6060 aluminum alloy, process analysis and monitoring, 288
Grinding wheels
Sintering and vitrification heat treatment of cBN grinding wheels, 232
GUI
Development of a ball groove measuring system for forged outer race constant velocity (CV) joints, 145

Hard turning
Effect on cutting force in turning hardened tool steels with cubic boron nitride inserts, 274
Thermal distortions in the machining of small bores, 335
Hardened tool steel
Effect on cutting force in turning hardened tool steels with cubic boron nitride inserts, 274
Heating
Electro-discharge compaction of WC–Co and W–Ni–Fe–Co composite materials, 182
High cycle fatigue
High cycle fatigue life prediction of cold forging tools based on workpiece material property, 178
High speed pulsed welding
Microstructural analysis of AISI 304 bars welded with high speed pulsed discharges, 149
High strength steel
Experimental investigations of the roll load and roll torque when high strength steel is roll formed, 44
Hole-flanging
Investigations into collar drawing using urethane pads, 87
Hot bar rolling
Numerical investigation of austenite grain size distribution in square-diamond pass hot bar rolling, 114
Hot forging
Metallographic evaluation of welded forging preforms, 82
Hybrid welding
The influence of arc transfer mode in hybrid laser-mig welding, 111
Hydrofluoric acid
Chemical-assisted ultrasonic machining of glass, 153
Hydrogen storage
Polymer and composite foam for hydrogen storage application, 102
Hydrostatic extrusion
A study of hydrostatic extrusion as a consolidation process for fabricating ultrafine-grained bulk Al–Mg alloy, 396
Hypereutectic Al–Si
Casting of Al–Si hypereutectic aluminum alloy strip using an unequal diameter twin roll caster, 238

Incremental forming
Effect of material properties on deformation behavior in incremental tube-burring process using a bar tool, 24
Incremental sheet forming
An analytical model for improving precision in single point incremental forming, 92
Shape and dimensional accuracy in Single Point Incremental Forming: State of the art and future trends, 390
Inoculation
Investigation on properties and microstructures of spheroidal graphite Fe–C–2Si and Fe–C–2Al cast irons, 360
Inspection process
Modeling the integration between technological product specifications and inspection process, 34
Integrated circuits
Deformation characteristics of Au wire bonding, 16
Iron–platinum
Preparation of iron–platinum nanoparticles in water/triton/cyclohexane microemulsions, 48

K-10 montmorillonite clay
Influence of montmorillonite clay on the thermal and mechanical properties of conventional carbon fiber reinforced composites, 347
Kinematics
Requirements of a dieless wire drawing system, 310
K-Mold
Evaluation of methods for metal cleanliness assessment in die casting, 242
Knowledge based system
Modeling the integration between technological product specifications and inspection process, 34
Knowledge model
Modeling the integration between technological product specifications and inspection process, 34

Laser
The influence of arc transfer mode in hybrid laser-mig welding, 111
Laser alloying
Comparison of the surface alloying of the 32CrMoV12-28 tool steel using TiC and WC powder, 321
Laser milling
Experimental analysis of the laser milling process parameters, 220
Laser processing
Laser processing of multicrystalline silicon for texturization of solar cells, 228
Laser remelting
Comparison of the surface alloying of the 32CrMoV12-28 tool steel using TiC and WC powder, 321
Laser welding
Thermo-mechanical modeling of laser welding of AA5083 sheets, 215
Optical detection of conduction/keyhole mode transition in laser welding, 364
Mechanical characterization of CO_2 laser beam butt welds of AA5083, 381
Lateral compression
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Liquid crystal display
Electrode structure for high transmittance and aperture ratio in TFT-LCD, 302
Liquid impact
Pulsed liquid impact machining of materials, 185
LVDT sensor
Development of a ball groove measuring system for forged outer race constant velocity (CV) joints, 145

Machinability
Creep feed grinding of a gamma titanium aluminide intermetallic alloy using SiC abrasives, 210
Machining process modeling
Effect on cutting force in turning hardened tool steels with cubic boron nitride inserts, 274
Maghemite
Synthesis and characterization of magnetic iron oxide nanoparticles via w/o microemulsion and Massart's procedure, 235
Magnesium alloys
Friction stir processing of commercial AZ31 magnesium alloy, 77
Pressurized solidification of magnesium alloy AM50A, 247
Magnetic field strength
An overview of magnetostriction, its use and methods to measure these properties, 96
Magnetic materials
New possibilities of composite materials application—Materials of specific magnetic properties, 352
Magnetic nanoparticles
Synthesis and characterization of magnetic iron oxide nanoparticles via w/o microemulsion and Massart's procedure, 235

Magnetic sensors and actuators
An overview of magnetostriction, its use and methods to measure these properties, 96
Magnetostriction
An overview of magnetostriction, its use and methods to measure these properties, 96
Manufacturing
Sintering and vitrification heat treatment of cBN grinding wheels, 232
Massart's procedure
Synthesis and characterization of magnetic iron oxide nanoparticles via w/o microemulsion and Massart's procedure, 235
Materials' characterization
Characterization of yielding of sheet metal at elevated temperatures, 20
Mechanical properties
Design of processes and products through simulation of three-dimensional extrusion, 2
Experimental investigation for rheology forming process of Al–7% Si aluminum alloy with electromagnetic system, 165
Mechanical characterization of CO_2 laser beam butt welds of AA5083, 381
Metal cleanliness
Evaluation of methods for metal cleanliness assessment in die casting, 242
Metal cutting
A new approach for the modelling of residual stresses induced by turning of 316L, 270
Metal forming
Fabrication of micro-billet by sheet extrusion, 283
Metal injection molding
Numerical analysis of debinding and sintering of MIM parts, 385
Metallic glass
Thermal de-vitrification and formation of single phase nano-crystalline structure in Fe-based metallic glass alloys, 377
Mg alloy
Mathematical model for the twin roll type strip continuous casting of magnesium alloy considering thermal flow phenomena, 251
Mg alloy sheets
Numerical and experimental investigations on the effect of the heating strategy and the punch speed on the warm deep drawing of magnesium alloy AZ31, 342
Micro-channel tube
Processing effects in aluminum micro-channel tube for brazed R744 heat exchangers, 30
Micro-CT
Polymer and composite foam for hydrogen storage application, 102
Micro-drill
Improvement of micro-drilled hole quality for printed wiring boards, 293
Micro-drilling
Chemical-assisted ultrasonic machining of glass, 153
Microemulsions
Preparation of iron–platinum nanoparticles in water/triton/cyclohexane microemulsions, 48
Micro-forming
Springback behavior of brass in micro sheet forming, 7
Fabrication of micro-billet by sheet extrusion, 283
Micromachining
Experimental analysis of the laser milling process parameters, 220
Microstructural analysis
Microstructural analysis of AISI 304 bars welded with high speed pulsed discharges, 149
Microstructure modification
Friction stir processing of commercial AZ31 magnesium alloy, 77
Microtube
Experimental and numerical study on deformation behavior in dieless drawing process of superplastic microtubes, 59
MIG-laser CO_2 hybrid welding
Statistical analysis of MIG-laser CO_2 hybrid welding of Al–Mg alloy, 106
Mild steel
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Milling
Selection of cutting conditions for a stable milling of flexible parts with bull-nose end mills, 279
Robust design of flank milling parameters based on grey-Taguchi method, 400
Modeling
Quantitative prediction of microporosity in aluminum alloys, 265
A semi-analytical model for predicting the wear contour in rod rolling process, 306
Molecular dynamics simulation
The effects of thin-film thickness on the formaton of metallic patterns by direct nanoimprint, 326
Multicrystalline silicon
Laser processing of multicrystalline silicon for texturization of solar cells, 228

Nano-crystalline
Thermal de-vitrification and formation of single phase nano-crystalline structure in Fe-based metallic glass alloys, 377
Nano-indentation test
The evaluation of residual stress on the drawn wire using nano-indentation test, 64
Nanoparticles
Preparation of iron–platinum nanoparticles in water/triton/cyclohexane microemulsions, 48
Natural weathering
Natural weathering effects on some properties of CPVC pipe material, 198
Nd–Fe–B
New possibilities of composite materials application—Materials of specific magnetic properties, 352
Net-shape forming
Shape and dimensional accuracy in Single Point Incremental Forming: State of the art and future trends, 390
Nondestructive evaluation
Torsional fatigue behavior of adhesively joined tubes, 339
Numerical modelling
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
A new approach for the modelling of residual stresses induced by turning of 316L, 270
Numerical prediction
Numerical investigation of austenite grain size distribution in square-diamond pass hot bar rolling, 114
Numerical simulations
Development of a test method for the rheological characterization of polymers under the injection molding process conditions, 119

Optimization
Design of processes and products through simulation of three-dimensional extrusion, 2
Experimental analysis of the laser milling process parameters, 220
Robust design of flank milling parameters based on grey-Taguchi method, 400
Outer race
Development of a ball groove measuring system for forged outer race constant velocity (CV) joints, 145
Oxide
Chitosan-mediated electrosynthesis of organic–inorganic nano-composites, 68

Parametric characterization
Behavior pattern and parametric characterization for low density crushable foams, 73
Pitting corrosion
Corrosion behavior of vacuum sintered duplex stainless steels, 161
Plasma spectroscopy
Optical detection of conduction/keyhole mode transition in laser welding, 364
Plastication influence
Development of a test method for the rheological characterization of polymers under the injection molding process conditions, 119
PoDFA
Evaluation of methods for metal cleanliness assessment in die casting, 242
Polymeric foam
Polymer and composite foam for hydrogen storage application, 102
Porosity
Quantitative prediction of microporosity in aluminum alloys, 265
Investigation on properties and microstructures of spheroidal graphite Fe–C–2Si and Fe–C–2Al cast irons, 360
Powder
Electro-discharge compaction of WC–Co and W–Ni–Fe–Co composite materials, 182
Powder forming
Sintering and vitrification heat treatment of cBN grinding wheels, 232
Pressure
Electro-discharge compaction of WC–Co and W–Ni–Fe–Co composite materials, 182
Pressurized solidification of magnesium alloy AM50A, 247
Pressure testing
Processing effects in aluminum micro-channel tube for brazed R744 heat exchangers, 30
Pulse
Electro-discharge compaction of WC–Co and W–Ni–Fe–Co composite materials, 182
Pulsed water jet machining
Pulsed liquid impact machining of materials, 185

Quasi-static
Lateral crushing of circular and non-circular tube systems under quasi-static conditions, 132
Residual stress relaxation method
The evaluation of residual stress on the drawn wire using nano-indentation test, 64
Residual stresses
The evaluation of residual stress on the drawn wire using nano-indentation test, 64
Residual stresses in aluminum castings, 170
A new approach for the modelling of residual stresses induced by turning of 316L, 270
Influence of microshot peening on surface layer characteristics of structural steel, 297
Rheological behavior
Deformation behavior of wrought aluminum alloys in incremental compression experiment with a closed die, 372
Rheology forming
Experimental investigation for rheology forming process of Al–7% Si aluminum alloy with electromagnetic system, 165
Rheometer
Development of a test method for the rheological characterization of polymers under the injection molding process conditions, 119
Robust parameter design
Robust design of flank milling parameters based on grey-Taguchi method, 400
Rod rolling process
A semi-analytical model for predicting the wear contour in rod rolling process, 306
Roll groove
A semi-analytical model for predicting the wear contour in rod rolling process, 306
Roll load
Experimental investigations of the roll load and roll torque when high strength steel is roll formed, 44
Roll torque
Experimental investigations of the roll load and roll torque when high strength steel is roll formed, 44

Seam weld
Characterization of seam weld quality in AA6082 extruded profiles, 127
Sheet extrusion
Fabrication of micro-billet by sheet extrusion, 283
Sheet metal
Springback determination of sheet metals in an air bending process based on an experimental work, 174
Casting of Al–Si hypereutectic aluminum alloy strip using an unequal diameter twin roll caster, 238
Shot peening
Influence of microshot peening on surface layer characteristics of structural steel, 297
Silicon modification level
Effect of cooling rate on the solidification behavior of AC $AlSi_7Cu_2$ alloy, 317
Sintered stainless steel
Corrosion behavior of vacuum sintered duplex stainless steels, 161
Size effect
Investigation of the size effect on crack propagation using finite element method and strain gradient plasticity, 193
Small bores
Thermal distortions in the machining of small bores, 335
Solar cells
Laser processing of multicrystalline silicon for texturization of solar cells, 228
Solidification
Pressurized solidification of magnesium alloy AM50A, 247
Quantitative prediction of microporosity in aluminum alloys, 265
Investigation on properties and microstructures of spheroidal graphite Fe–C–2Si and Fe–C–2Al cast irons, 360
Springback
Springback behavior of brass in micro sheet forming, 7
Springback determination of sheet metals in an air bending process based on an experimental work, 174
Squeeze casting
Pressurized solidification of magnesium alloy AM50A, 247
Stability
Requirements of a dieless wire drawing system, 310
Statistical analysis
Statistical analysis of MIG-laser CO_2 hybrid welding of Al–Mg alloy, 106
Steering input shaft (SIS)
A study on monobloc tube drawing for steering input shaft, 55
304 steel butt joint
Microstructural analysis of AISI 304 bars welded with high speed pulsed discharges, 149
Strain gradient plasticity
Investigation of the size effect on crack propagation using finite element method and strain gradient plasticity, 193
Strain rate sensitivity
The effect of strain rate sensitivity evolution on deformation stability during superplastic forming, 189
Stress analysis
Processing effects in aluminum micro-channel tube for brazed R744 heat exchangers, 30
Strip casting
Casting of Al–Si hypereutectic aluminum alloy strip using an unequal diameter twin roll caster, 238

Structural steel
Influence of microshot peening on surface layer characteristics of structural steel, 297
Superplastic forming (SPF)
The effect of strain rate sensitivity evolution on deformation stability during superplastic forming, 189
Cavitation phenomenon of commercially pure titanium, 202
Superplasticity
Experimental and numerical study on deformation behavior in dieless drawing process of superplastic microtubes, 59
Surface alloying/modification
Use of powder metallurgy (PM) compacted electrodes for electrical discharge surface alloying/modification of Ti–6Al–4V alloy, 123
Surface integrity
Creep feed grinding of a gamma titanium aluminide intermetallic alloy using SiC abrasives, 210
Surface roughness
Examination of machining parameters on surface roughness in EDM of tool steel, 141
Improvement of micro-drilled hole quality for printed wiring boards, 293
Surface treatment
Laser processing of multicrystalline silicon for texturization of solar cells, 228
Influence of microshot peening on surface layer characteristics of structural steel, 297

Tailor welded preforms
Metallographic evaluation of welded forging preforms, 82
Tailor-welded blanks
Effects of tooling temperatures on formability of titanium TWBs at elevated temperatures, 157
Taper of cut
Performance of different abrasive materials during abrasive water jet machining of glass, 404
Temperature
Influence of temperature on the initiation of adhesive wear with respect to deep drawing of aluminum-alloys, 314
Temperature profiles
Friction stir processing of commercial AZ31 magnesium alloy, 77
Tensile
Natural weathering effects on some properties of CPVC pipe material, 198
Tensile test
Experimental and analytical evaluation on flow stress of tubular material for tube hydroforming simulation, 368
Thermal and mechanical properties
Influence of montmorillonite clay on the thermal and mechanical properties of conventional carbon fiber reinforced composites, 347
Thermal characteristics
Effect of cooling rate on the solidification behavior of AC $AlSi_7Cu_2$ alloy, 317
Thermal distortion
Thermal distortions in the machining of small bores, 335
Thermo-fluid analysis
Mathematical model for the twin roll type strip continuous casting of magnesium alloy considering thermal flow phenomena, 251
Thickness
Effect of initial thickness on shear bending process of circular tubes, 136
Thin floors
Selection of cutting conditions for a stable milling of flexible parts with bull-nose end mills, 279
Thin-film thickness effect
The effects of thin-film thickness on the formaton of metallic patterns by direct nanoimprint, 326

Titanium
Effects of tooling temperatures on formability of titanium TWBs at elevated temperatures, 157
Cavitation phenomenon of commercially pure titanium, 202
Titanium alloys
Creep feed grinding of a gamma titanium aluminide intermetallic alloy using SiC abrasives, 210
Titanium carbide
Comparison of the surface alloying of the 32CrMoV12-28 tool steel using TiC and WC powder, 321
Tool edge
Theoretical and experimental investigations of finish machining with a rounded edge tool, 331
Tool steel
Examination of machining parameters on surface roughness in EDM of tool steel, 141
Tool-life prediction
High cycle fatigue life prediction of cold forging tools based on work-piece material property, 178
Tube bending
Effect of initial thickness on shear bending process of circular tubes, 136
Tube drawing
A study on monobloc tube drawing for steering input shaft, 55
Tube forming
Effect of material properties on deformation behavior in incremental tube-burring process using a bar tool, 24
Effect of initial thickness on shear bending process of circular tubes, 136
Tube hydroforming process
Experimental and analytical evaluation on flow stress of tubular material for tube hydroforming simulation, 368
Tungsten carbide
Comparison of the surface alloying of the 32CrMoV12-28 tool steel using TiC and WC powder, 321
Twin roll caster
Casting of Al–Si hypereutectic aluminum alloy strip using an unequal diameter twin roll caster, 238
Twin roll continuous casting
Mathematical model for the twin roll type strip continuous casting of magnesium alloy considering thermal flow phenomena, 251

Ultrafine-grain
A study of hydrostatic extrusion as a consolidation process for fabricating ultrafine-grained bulk Al–Mg alloy, 396
Ultrasonic machining
Chemical-assisted ultrasonic machining of glass, 153
Undercooling
Effect of cooling rate on the solidification behavior of AC $AlSi_7Cu_2$ alloy, 317
Uniform strain distribution
Design guideline of multi-pass equal channel angular extrusion for uniform strain distribution, 39
Upper bound
Determination of optimum process parameters for wrinkle free products in deep drawing process, 51
Urethane
Investigations into collar drawing using urethane pads, 87

Vitrification
Sintering and vitrification heat treatment of cBN grinding wheels, 232

W/o microemulsion
Synthesis and characterization of magnetic iron oxide nanoparticles via w/o microemulsion and Massart's procedure, 235
Warm deep drawing
Numerical and experimental investigations on the effect of the heating strategy and the punch speed on the warm deep drawing of magnesium alloy AZ31, 342

Warm forming
Effects of tooling temperatures on formability of titanium TWBs at elevated temperatures, 157
Water jet
Performance of different abrasive materials during abrasive water jet machining of glass, 404
Wear contour
A semi-analytical model for predicting the wear contour in rod rolling process, 306
Wire bonding
Deformation characteristics of Au wire bonding, 16
Wrinkling
Determination of optimum process parameters for wrinkle free products in deep drawing process, 51
Wrought aluminum alloy
Deformation behavior of wrought aluminum alloys in incremental compression experiment with a closed die, 372

Yield locus
Characterization of yielding of sheet metal at elevated temperatures, 20